Building Partnerships to Enable Connected Mobility

The ecosystem of co-operation supporting evolution to automated transport

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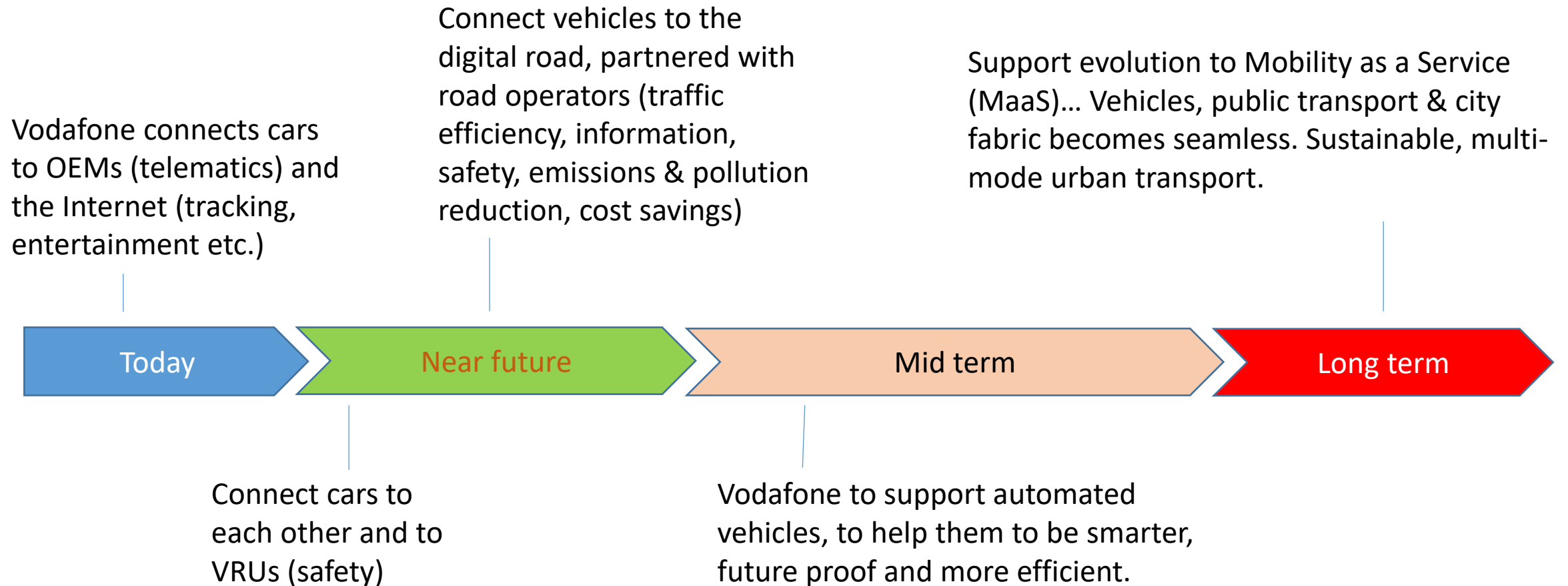**Director, Vodafone Group R&D**

Vodafone and the Automotive team

World's largest IoT service provider

45 years' experience in vehicle security and telematics

54 countries covered with Secure Operating Centres globally, 45 in Europe

35 vehicle manufacturers, working with Vodafone Automotive products & services

27m vehicles connected with Vodafone on the road today

900 automotive experts

49bn kilometers of driving data analysed

4.4m crash events managed

5k Vehicle alerts handled per day on average across all markets

To date, Vodafone has invested more than €5 billion in 5G spectrum across the EU, rolling out 5G services in over 100 European cities across nine countries

Vodafone's Automotive Mission/Strategy

Vodafone connects cars to OEMs (telematics) and the Internet (tracking, entertainment etc.)

Connect vehicles to the digital road, partnered with road operators (traffic efficiency, information, safety, emissions & pollution reduction, cost savings)

Support evolution to Mobility as a Service (MaaS)... Vehicles, public transport & city fabric becomes seamless. Sustainable, multi-mode urban transport.

Today	Near future	Mid term	Long term

Connect cars to each other and to VRUs (safety)

Vodafone to support automated vehicles, to help them to be smarter, future proof and more efficient.

Calls for new partnership, co-operation & business relationships

- Support for RO business (e.g. deliver road information , vehicle as a sensor, smart city)
- Systems & Service hosting incl. MEC
- Data

- Service toolbox (Maps, PP, S/w DL, V2X)
- Local OEM services hosting
- MEC, automated vehicle support
- Predictive QoS, Automotive network slice

City/Road Operator

Mobile Network Operator

Automotive OEM

- Network deployment support
- Service revenue

- Service revenue
- Data

- Service components (e.g. maps, position, content, AI/ML engines)
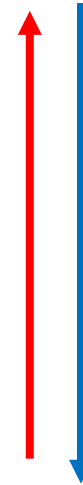
- Service platform, MEC hosting
- B2B2C revenue collection
- Revenue share
- Security support
- Data

Service Partners

Vodafone's Open Road Connected Mobility Pilot

WEST MIDLANDS COMBINED AUTHORITY

NOKIA

- **Use case driven, ecosystem of partnerships**
- **Government and local authorities as key stakeholders**
- **Evolving scope, addressing short and longer term business opportunities**

Commercial
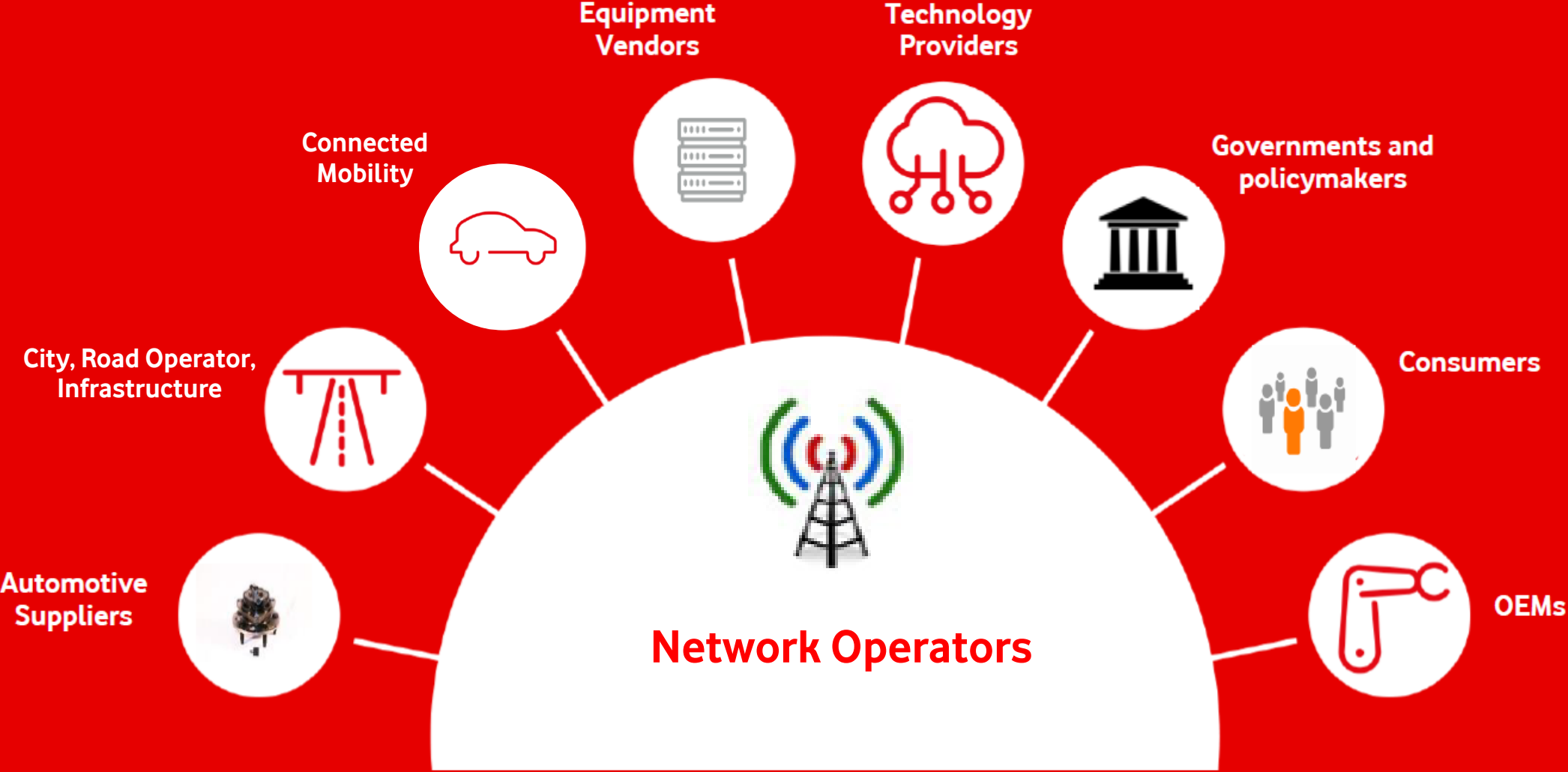
Regulatory

Technology

Native & Partner Capabilities

- V2X GeoServer (V2N2V, V2N2I, V2N)
- Road Digital Twin
- MEC/cloud hosting, 3rd party services
- Artificial Intelligence/Machine Learning
- Precise GNSS Positioning RTK, Integrity
- HD Maps support & distribution

Use Cases (non exhaustive)

- Road Safety Information
  - E.g. queues ahead, road/driving conditions, stranded vehicle etc. (V2N2V)
- Traffic control
  - E.g. In-vehicle information, GLOSA, RLV etc. (V2N2I)
- Data analytics
  - Vehicle As A Sensor (V2N)
- Advanced 5GNR
  - See-through video, Sensor sharing (V2N2V)
  - Tele-Operated Driving (V2N)
  - Real-time edge video processing support (MEC4CAV)

Ecosystem stakeholders acting in partnership

Equipment Vendors

Technology Providers

Connected Mobility

Governments and policymakers

City, Road Operator, Infrastructure

Consumers

Network Operators

Automotive Suppliers

OEMs

Underpinned by Vodafone's live, open-road pilot